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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/578,442

05/05/2006

Kiyoshi Sagawa

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EXAMINER

DIETERLE, JENNIFER M

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

04/30/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/578,442	Applicant(s) SAGAWA ET AL.	
	Examiner Jennifer Dieterle	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 April 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) 1-3 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>5/5/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of the Claims

Claims 1-3 have been withdrawn.

Claims 4-6 are pending and being examined below.

Election/Restrictions

1. Applicant's election without traverse of Group II, claims 4-6 in the reply filed on March 12, 2010 is acknowledged.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

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the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pierangela et al. (US 6,054,030).

Regarding claims 4 and 6, Pierangela et al. teach a water quality analyzer comprising:

- A pair of sensor electrodes, one made from zinc 14 and the other from stainless steel or titanium 13 (i.e. different metals) (col. 6-9, figure 2);
- The electrodes are placed in an aqueous environment (abstract);
- The sensor is galvanic which provides for the sensing of voltage across the electrodes in proportion to the concentration of impurity in the fluid;
- A detection means for measuring current intensity (col. 3);
- A resistance element R (i.e. impedance, figure 2, col. 9) that is connected between the electrodes and provides for a potential difference V of at least 0.4 V between the electrodes.

With regard to the resistance element being able to improve non-linearity of the sense voltage, this is the intended use of the resistance elements. A recitation of the

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intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458,459 (CCPA 1963).

Pierangela et al. teach the application of 0.4V across the resistance terminal provides for a good degree of accuracy (col. 7). In the device of Pierangela et al., appropriate modifications can be made to the resistance that is applied across the electrode in order to increase the sensitivity of the measurements. Therefore, since Pierangela et al. encompasses the structure of the claimed invention and Pierangela et al. teach applying a voltage to the resistance element which provides for increased accuracy, therefore, the prior art structure is capable of performing the intended use. Therefore, it would have been obvious to one skilled in the art to modify the voltage applied to the resistance element in the device of Pierangela et al. to improve the non-linearity of the sense voltage.

With regard to claim 6, Pierangela et al. teach an impedance element capable of supplying voltage. In terms of the impedance value of this element being equal to or more than 1 kilohm and equal to or less than 1 megohm, it would have been obvious to one skilled in the art to utilize an impedance amount in conjunction with the resistance of the electrodes and the fluid composition, the analyte of interest and other given factors in order to achieve optimal analyte detection. Generally, differences in

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concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955); MPEP 2144.05 II A.

3. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pierangela et al. (US 6,054,030) in view of Wolcott et al. (US 5,346,605) and Mosley et al. (US 6,653,842,B2).

Regarding claim 5, Pierangela et al. teach a water quality sensor, but does not teach an offset voltage supply means or a gain circuit.

First, Wolcott et al. teach a chlorine sensor that comprises an offset voltage compensation means that is capable of superimposing an offset voltage on a sense voltage in conjunction with an amplification means. Wolcott et al. teach that that current is proportional to the concentration of the analyte (i.e. chlorine) in the fluid and that through the use of the offset voltage supply and amplifier interferences in the fluid that would produce incorrect chlorine readings are minimized (col. 8).

Second, Mosley et al. teach a gain circuit for use in a galvanic sensor. Mosley et al. teach that the gain can be adjusted to reduce the input range or to enlarge the output range in order to amplify the signal prior to the detection device (col. 9-10).

Therefore, it would have been obvious to one skilled in the art to modify the circuitry of Pierangela et al. to include an offset voltage compensation means as taught by Wolcott et al. because an offset voltage can be utilized to compensate for or minimize interferences in the fluid other than the analyte of interest and to include a gain circuit as taught by Mosley et al. because a gain circuit will provide for an enlarged output signal so that detection devices are better able to detect the signal.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer Dieterle whose telephone number is (571) 270-7872. The examiner can normally be reached on Monday thru Friday, 8am to 5pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JMD

4/22/10

/Alexa D. Neckel/

Supervisory Patent Examiner, Art Unit 1795